DOCUMENT RESUME

ED 291 186 EC 201 953

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TITLE Review of Macomb Community Schools Learning Disabilities Eligibility Screening Procedure, 1980-87: Using a Discrepancy Formula To Screen Children for Learning Disabilities.
INSTITUTION Western Illinois Univ., Macomb.
PUB DATE 87
NOTE 15p.; For related document, see ED 210 891.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Achievement; Achievement Tests; *Decision Making; Elementary Secondary Education; *Handicap Identification; Incidence; Intelligence Tests; *Learning Disabilities; Screening Tests; *Student Evaluation; *Student Placement; *Underachievement
IDENTIFIERS Illinois (Macomb); *Myklebust Learning Quotient Method

ABSTRACT

The study reviewed application of the Myklebust Learning Quotient Method of identifying learning disabilities (LD) in the Macomb (Illinois) community school district from 1980 to 1987. The learning quotient (LQ) is a ratio of actual achievement to expected achievement. The Macomb program established ability estimates by use of the Wechsler Intelligence Scale for Children (Revised) and the Kuhlmann-Anderson Test; and achievement estimates with the Science Research Associates (SRA) achievement series and the Peabody Individual Achievement Test. Use of a correction factor for grade level with an LQ of 83 as the cutoff resulted in qualification as LD of 4% of the population. Use of the discrepancy formula was recommended as the first step in LD identification with more specific individual evaluation following. The review of current practices found that 6-9% of students continued to be classified as LD. Problems identified included placement in an LD class without the screening procedure, use of the screening procedure as the entire basis for LD diagnosis, placement without further evaluation, and LD placement regardless of the results of the screening procedure. It was concluded that, though the screening procedure itself was not failing its original purpose, implementation procedures need to be modified. (DB)

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ED291186

Review of Macomb Community Schools

Learning Disabilities Eligibility Screening Procedure

1980-87

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1987

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Using a Discrepancy Formula to Screen
Children for Learning Disabilities

Federal regulations implementing P.L. 94-142 (Education of the Handicapped Act) require that diagnosis of specific learning disabilities meet a two-way test: 1) "that the child has a severe discrepancy between achievement and intellectual ability. . .", and 2) that this achievement/abilility discrepancy be caused by or be the result of a specific learning disability which is defined as "a disorder in one or more of the basic psychological processes involved in understanding or using language. . ." (Federal Register, 1977). The existence of a learning disability (LD) would not in itself justify a learning disability diagnosis. Only when the learning disability resulted in a severe achievement/ability discrepancy would the LD diagnosis be accurate and provision of special education be appropriate.

Learning disability is the largest category of handicapped children being served by the public schools (4.62 per cent, The Condition of Education, 1985). Standard diagnostic procedures require that referrals receive a complete individual psychological examination and educational evaluation. Because of the large number of LD referrals, such a procedure would result in a substantial commitment of resources. For this reason, a screening procedure that would identify the achievement/ability discrepancy, has much to recommend it. The more extensive and time-consuming diagnostic procedures could be reserved for identifying the cause of the discrepancy.

Although the severe achievement/ability discrepancy was prescribed in federal guidelines, methods for determining this discrepancy were not. State Departments of Education have increasingly adopted criteria to quantify the discrepancy (33% in 1981/82 and 57% in 1985/86) using four basic procedures (grade deviation, expectancy formula, standard score and regression analysis) (Frankenberger & Harper, 1987). Though criticisms of discrepancy formulas continue (Council for Learning Disabilities, 1987), the need to delimit the LD category is apparent. The dangers that this approach might be overly simplistic for LD diagnosis can be countered when the formula is used as only one part of the diagnostic process, screening.

The Macomb Study

Initiated in 1980, the Macomb Study field tested the Myklebust Learning Quotient Method (Myklebust, 1972) of identifying learning disabilities in the Macomb (IL) Community School District (Swartz, 1981). The study was initiated because of the disproportionate number of children identified as learning disabled in the district (in excess of 6 per cent) and the need to identify an efficient and effective method to screen LD referrals that could be managed by special education teachers and conserve the more limited school psychologist resources.

Myklebust proposed a ratio of actual achievement to expected achievement expressed as a learning quotient (actual achievement - expected achievement = LQ) as a method of determining severity

of a learning disability. Myklebust suggested that an LQ cut-off value of 90 be used as one basis for classification of a learning disability.

The Macomb Study (Swartz, Miner & Taylor, 1982) identified a number of important variables for implementing a screening procedure using the Myklebust formula:

1. Ability estimates were obtained from the WISC-R (Weschler, 1974), the Kuhlmann-Anderson Test (Kuhlmann & Anderson, 1963) and the SRA Achievement Series (SRA, 1978). Significant differences were found when using ability scores generated by the SRA Series (which was designed, for the most part, to measure achievement) and its use for this purpose was rejected. Since the differences between WISC-R and Kuhlmann-Anderson scores were insignificant, either could be used with confidence to estimate ability. In keeping with the initial purpose of using a screening procedure, the teacher administered Kuhlmann-Anderson Test was selected as the ability measure of choice.

2. Achievement estimates were obtained from the SRA Achievement Series and the Peabody Individual Achievement Test (PIAT) (Dunn & Markwardt, 1970). Differences in screening results using either data set were insignificant. Since the SRA scores were available for all elementary children in the district, these scores could be used in the calculation of the achievement/ability discrepancy. PIAT scores could be used for students on whom no SRA scores were available or when more

specific achievement scores available from the individually administered PIAT were desired.

3. The Myklebust formula suggests factoring in a grade level of 1 through 12 for formula calculation and a Learning Quotient (LQ) cut-off score of 90. The LQ cut-off score selected for use in the Macomb District was 83 representing 1 standard deviation (SD). This selection was based on the fact that the 90 LQ identified an unlikely number of LD children and the 83 LQ was established using specific achievement profiles of children in the district. Another modification was indicated because of the fact that many children in grades 1 and 2 who were experiencing serious academic problems could not arithmetically attain an LQ of 83 or less. An adjustment of 1.5 SD, LQ 88, was made for grades 1 and 2. A maximum grade level of 7.0 was selected for LQ calculation because of adjusted achievement expectation for high school LD students. These modified procedures resulted in LQ scores that qualified 4 percent of the population. The procedure was implemented using these modifications because of the more reasonable screening results.

4. The screening procedure was recommended as the first step in diagnosing LD. The need for specific evaluation to demonstrate that the achievement/ability discrepancy was related to LD was recognized and recommended. This procedure was judged to be both efficient and effective while at the same time assuring the use of objective criteria to support clinical judgement in the diagnostic process.

The Macomb Study Revisited - 1987

The Macomb District prevalence has continued to exceed incidence by a considerable margin (from 6-9% since 1980/81, see Table 1). These data prompted a review of the screening procedure to identify any variable that might be affecting overall screening effectiveness. Hypotheses regarding LD population increase included: 1) lower overall achievement of the regular population, 2) inconsistent use of the screening procedure, 3) inconsistent adherence to the LQ cut-off guidelines, 4) failure to confirm that the achievement/ability discrepancy was the result of LD, and 5) pressure to serve children experiencing academic difficulty regardless of cause.

Table 1

Prevalence of Learning Disabilities

School year	District population*	LD number*	%
1980-81	2716	196	.07
1981-82	2586	221	.08
1982-83	2512	228	.09
1983-84	2386	201	.08
1984-85	2385	157	.07
1985-86	2360	134	.06
1986-87	2303	138	.06

*count does not include early childhood handicapped

Results

The SRA Achievement Series has been used each year since 1980-81 to monitor achievement in the school district. No significant variance in the overall achievement scores of the district population was identified for the years, 1980-87. Modifications of the discrepancy formula were therefore unnecessary.

Numerous problems were found in the use of the screening procedure. Some children had been placed in an LD class without use of the screening procedure. Reasons for this action included: 1) teachers new to the district had not been trained in the procedure and were unfamiliar with its use, 2) evaluations conducted by the school psychologist did not include the use of the screening procedure even though no alternative method to determine an achievement/ability discrepancy was employed, 3) periodic resceening using updated data was not completed, and 4) children transferring from other districts where they were diagnosed as LD were not screened on entrance to the district. Many children had remained in an LD placement on the basis of scores obtained on the original screening. These practices resulted in 63 per cent of the children currently placed in LD classes being screened and 52 per cent qualified by those screenings (see Tables 2 and 3). Rescreenings of those not qualified and screening results for those placed without use of the screening procedure resulted in 79 per cent receiving a qualifying score for LD placement (see Tables 4 and 5).

Table 2

Summary of Screening Results*

LD Class	Student Number	Screened Number	Screened %	Qualified Number	Qualified %
1	7	4	57	4	57
2	4	1	25	0	0
3	7	2	29	2	29
4	7	7	100	6	86
5	4	0	0	0	0
6	16	13	81	10	63
7	14	12	86	11	69
8	10	9	90	8	80
9	7	1	14	1	14
10	14	8	57	8	57
11	8	4	50	4	50
12	8	4	50	2	25
13	12	7	58	4	33
14	10	8	80	7	70
TOTALS	128	80	63	67	52

*Missing data resulted from transfers, both out of the district and out of LD

Table 3

Summary of Screening Results
By Level

Level	Student Number	Screened Number	Screened %	Qualified Number	Qualified %
Elementary	48	29	60	23	48
Junior High	34	25	74	23	68
High School	46	26	57	21	46
TOTALS	128	80	63	67	52

Table 4

Results of Nonqualified Rescreenings
and New Screenings

LD Class	Number Screened	Number Qualified	%
1	1	1	100
2	4	3	75
3	4	4	100
4	1	0	0
5	4	2	50
6	2	2	100
7	2	0	0
8	1	1	100
9	4	4	100
10	5	5	100
11	2	2	100
12	1	0	0
13	8	6	75
14	3	3	100
TOTALS	42	33	79

Table 5

Results of Nonqualified Rescreenings
and New Screenings
By Level

Level	Number Screened	Number Qualified	%
Elementary	23	15	65
Junior High	9	9	100
High School	10	9	90
TOTALS	42	33	79

Results from the screening procedure were used almost entirely as the basis for LD diagnosis and special education placement. Limited evaluation procedures used to verify LD as the cause of the achievement/ability discrepancy were employed. The absence of clear guidelines for this part of the diagnostic process and lack of familiarity with evaluation instruments to accomplish the task were both identified as strong contributors to a breakdown in verifying LD as the cause of academic difficulty.

LD teachers reported numerous cases of LD placement for a child regardless of the results of the screening procedure. In other cases children were placed in the absence of screening results. Both multidisciplinary staffing decisions (under the substantial influence of the school psychologist) and administrative decisions had resulted in this kind of action. It appeared that these placements were made in spite of available evidence that did not support the decision.

Discussion

No evidence was found that suggested that the screening procedure itself was failing its original purpose. Modification of the discrepancy formula was not indicated. However, a number of procedural questions surfaced that indicated the need to review the overall screening effort and take corrective measures.

A screening procedure can only be effective if it is used consistently. All LD referrals should be screened using similar data and similar procedures. If LD teachers need additional time to accomplish the procedure, such released time should be made

available to them. Many districts provide specialists released time at the beginning of each year to screen and identify their caseload (e.g., speech therapists). A similar opportunity for LD teachers would contribute substantially to the effectiveness of the screening procedure.

Children who transfer into the district with an LD label should be screened as a matter of course. Variations in procedures and differences in eligibility criteria are too great to assume a high level of interdistrict agreement.

The Macomb experience with screening using a discrepancy formula has been substantially positive. This being the case, it should be used with confidence. If eligibility criteria includes a method to measure and quantify the achievement/ability discrepancy, the basis for ignoring the data is unclear. Individuals or staffing teams need a clear alternative basis for judging the existence of a severe discrepancy if they make placements without screening results or when screening results do not meet the stated criteria. Undocumented or unsupported clinical judgement is a feeble substitute for data collected and interpreted using objective methods.

The screening procedure was only designed to identify an achievement/ability discrepancy. It is only one part of making an LD diagnosis. It is equally important to demonstrate that this discrepancy is the result of LD and not caused by other conditions or circumstances. This part of the diagnostic process is admittedly more complex. Teachers report the need for increased familiarity with evaluation options and technical

assistance in this part of the process. Inservice for teachers in evaluation techniques and an increased role for the school psychologist in supporting this effort might both be beneficial. Data generated in this phase of LD diagnosis are eventually the most valuable for program planning.

The use of the Myklebust method continues to have a great deal to recommend it. The value of a standard procedure that uses objective data cannot be overlooked. As with any method however, careful monitoring is needed. The problems identified and corrective measures recommended will help adjust the screening procedure in such a way as to allow its continued use. By this action, the objective of using an effective and efficient method to screen LD referrals and verify the achievement/ability discrepancy can be met.

Recommendations

1. Teachers new to the district should be trained to use the screening procedure. This should include both training in the specific tests used and the calculation of discrepancy scores.

2. All referrals to LD, including students who transfer in from other districts, should be screened using the screening procedure.

3. Because an achievement/ability discrepancy must be demonstrated for LD placement, diagnostic decisions should not be made that overrule screening results.

4. LD students should be rescreened whenever there is some change of status or at least every three years. This practice

would be consistent with P.L. 94-142 evaluation requirements.

5. Additional diagnostic testing must be completed for each student who receives a qualifying screening score. This procedure should be designed to establish whether or not LD is the cause of the discrepancy. Questions regarding other causes (i.e., behavior disorders) should be referred to the school psychologist.

6. Numerous children continue to need special assistance who do not qualify as LD. It is obvious that some response is needed to appropriately serve these children. However, it is not appropriate to place these children in classes for the learning disabled when they do not meet the necessary achievement/ability discrepancy.

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